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KONICA Corp.

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CLAIMS

[Claim(s)]

[Claim 1] Adhesion material for process means characterized by using the adhesion material whose volatile capacity is 0.1-9 (mug/cm²) as a coupling means used for structure formation of at least one process means of the multiple-processes means installed around the electrophotography photo conductor.

[Claim 2] Adhesion material for process means characterized by using the adhesion material whose residual monomers are 0.1-7.5 (mug/cm²) as a coupling means used for structure formation of at least one process means of the multiple-processes means installed around the electrophotography photo conductor.

[Claim 3] Adhesion material for process means characterized by the residual solvents of adhesion material used for structure formation of at least one process means of the multiple-processes means installed around the electrophotography photo conductor being 0.001-0.007 (mug/cm²).

[Claim 4] Adhesion material for process means given in any 1 term of claims 1-3 characterized by said multiple-processes means being two or more sorts of equipments chosen from electrification equipment, an image aligner, a developer, imprint equipment, and cleaning equipment.

[Claim 5] The process cartridge with which this process cartridge is characterized by using the adhesion material for the process means of a publication for any 1 term of claims 1-4 as a coupling means in an electrophotography photo conductor and the process cartridge which has at least one sort of process means.

[Claim 6] Electrophotography image formation equipment characterized by using the adhesion material for the process means of a publication for any 1 term of claims 1-4.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the process cartridge and electrophotography image formation equipment using the adhesion material and this adhesion material which use the image formation of an electrophotography method for a required process means on the occasion of operation.

[0002]

[Description of the Prior Art] As for image formation equipments, such as a printer using an electrophotography method, an electrophotography image is formed, when it has process means, such as electrification equipment, an image aligner, a developer, imprint equipment, and cleaning equipment, and this process means carries out a certain operation of electrification, development, etc. to an electrophotography photo conductor around an electrophotography photo conductor. These process means consist of two or more members and components, and each process means is formed of the coupling means which joins these members and components. The thing using adhesion material which prepared the shape of toothing at least in the joint of a member or components as such a coupling means, such as a mechanical coupling means and a double faced adhesive tape, etc. is mentioned. Although these coupling means form one process means from the cost and convenience, it is used together in many cases. That is, although it is required to make the configuration of a member and components into the structure suitable for a mechanical coupling means in order to form all of the member and components for it in forming one process means by the mechanical coupling means, by at least an unsuitable bond part's having a mechanical coupling means, or taking mechanical joint structure, it may become cost quantity remarkably and, in such a case, the chemical coupling means is used.

[0003] as a coupling means chemical in recent years -- adhesion material, such as a double-sided tape, -- large -- using -- **** -- although it is becoming like, if the structure of said process means carried out is formed using these adhesion material marketed, this process means is installed in electrophotography image formation equipment and an image is formed, the phenomenon which image nonuniformity often generates will have been found out. As a result of examining such causal relation, it acted on the electrophotography photo conductor at the adhesion material marketed, and the volatile component which degrades image formation remained, these after-images object evaporated this invention person etc. within image formation equipment, and it found out reducing the property of an electrophotography photo conductor.

[0004]

[Problem(s) to be Solved by the Invention] The purpose of this invention is offering the adhesion material for process means which does not generate image defects, such as image nonuniformity, as adhesion material used for structure formation of the process means used for electrophotography image formation equipment, and is offering the process cartridge using this adhesion material for process means, and the electrophotography image formation equipment using this process means.

[0005]

[Means for Solving the Problem] The purpose of this invention is attained by taking the following

structures.

[0006] 1. Adhesion material for process means characterized by using adhesion material whose volatile capacity is 0.1-9 (mug/cm²) as coupling means used for structure formation of at least one process means of multiple-processes means installed around electrophotography photo conductor.

[0007] 2. Adhesion material for process means characterized by using adhesion material whose residual monomers are 0.1-7.5 (mug/cm²) as coupling means used for structure formation of at least one process means of multiple-processes means installed around electrophotography photo conductor.

[0008] 3. Adhesion material for process means characterized by residual solvents of adhesion material used for structure formation of at least one process means of multiple-processes means installed around electrophotography photo conductor being 0.001-0.007 (mug/cm²).

[0009] 4. Adhesion material for process means given in said any 1 term of 1-3 characterized by said multiple-processes means being two or more sorts of equipments chosen from electrification equipment, image aligner, developer, imprint equipment, and cleaning equipment.

[0010] 5. Process cartridge with which this process cartridge is characterized by using adhesion material for process means of publication for said any 1 term of 1-4 as coupling means in electrophotography photo conductor and process cartridge which has at least one sort of process means.

[0011] 6. Electrophotography image formation equipment characterized by using adhesion material for process means of publication for said any 1 term of 1-4.

[0012] Hereafter, this invention is explained to a detail. As a coupling means used for structure formation of at least one process means of the multiple-processes means arranged around an electrophotography photo conductor, this invention is characterized by using the adhesion material for the process means of claims 1-3.

[0013] With the above-mentioned multiple-processes means, equipments, such as the electrification equipment which carries out a certain operation, an image aligner, a developer, imprint equipment, cleaning equipment, a transport device, and a decollator, and an equipment are mentioned to an electrophotography photo conductor (it is also only henceforth called a photo conductor) on the occasion of the image formation of an electrophotography method. In the electrophotography image formation equipment of this invention, the configuration that it is not necessary to arrange these equipments and all the equipments for example, and cleaning equipment and a developer are made to serve a double purpose around the electrophotography photo conductor may be used, and the electrophotography image formation equipment with which imprint equipment is not installed may be used.

[0014] It means considering as the tape on which the components or member which constitutes the process means described above as adhesion material for structure formation of said process means is joined or pasted up, and using adhesion material.

[0015] One of the adhesion material for the electrophotography photo conductors of this invention is characterized by volatile capacity being 0.1-9 (mug/cm²). With this volatile gas, it consists of volatile components, such as volatile components, such as a monomer component contained in the manufacture raw material of this adhesion material, a solvent used in the manufacture process of this adhesion material, and an additive. This invention is defined as volatile capacity as capacity measured by the following measuring methods. However, if it is the measuring method with which the same result is obtained based on the same measurement principle, a measuring device will not be restricted to the following measuring device.

[0016] Measurement of the measuring method volatility capacity of volatile capacity was performed using the dynamic head space method using the measuring equipment of GC-MS (H.P. the product made from 6890:HewlettPackard, JMS-AMII150: JEOL Co., Ltd. make). A sample area of 1cm of the measuring object, using 2, 120-degree-C heating for 10 minutes was performed, volatile gas was generated, and it measured. The amount of volatile gas was computed by n-pentadecane conversion.

[0017] One of the adhesion material for the electrophotography photo conductors of this invention is characterized by residual monomers being 0.1-7.5 (mug/cm²). This residual monomer means that the monomer of the manufacture raw material of this adhesion material remains in adhesion material.

[0018] By the same measuring method as measurement of said volatile capacity, the amount of

measuring method residual monomers of the amount of residual monomers is measured.

[0019] A sample area of 1cm of the measuring object, using 2, the Measuring condition performed 120-degree-C heating for 10 minutes, generated volatile gas, and was measured. The amount of residual monomers was computed by n-pentadecane conversion.

[0020] One of the adhesion material for the electrophotography photo conductors of this invention is characterized by residual solvents being 0.001-0.007 (mg/cm²). This residual solvent means that the solvent used in the manufacture process of this adhesion material into adhesion material remains.

[0021] By the same measuring method as measurement of said volatile capacity, the amount of measuring method residual solvents of the amount of residual solvents is measured.

[0022] A sample area of 1cm of the measuring object, using 2, the Measuring condition performed 120-degree-C heating for 10 minutes, generated volatile gas, and was measured. The amount of residual solvents was computed by n-pentadecane conversion.

[0023] Synthetic resin and synthetic rubber in which the adhesion material for the process means of this invention has adhesiveness, For example, polyvinyl methyl ether, the polyvinyl ethylene ether, polyvinyl isobutyl ether, A polyisobutylene, isobutylene isoprene rubber, chloroprene rubber, SBR, chlorinated rubber, Cyclized rubber, a vinyl chloride vinyl acetate copolymer, polymethacrylic acid, polyacrylic acid, It has the adhesive layer (binder) of one kind or the sheet configuration (a tape configuration is sufficient) which mixed two or more kinds and was formed out of polymethacrylic acid ester, polyacrylic ester, an ethylene-vinylacetate copolymer, a polyvinyl butyral, etc. Moreover, the adhesion material of this invention may have the base material in addition to the adhesive layer, and may consist of only adhesive layers like the double-sided tape. Furthermore, rosin, a rosin derivative, petroleum system resin, etc. can be added and used for this adhesive layer as a tackifier.

[0024] That is, it is the residual monomer used for formation ingredients, such as the above-mentioned rubber, a polymer, and resin, as said residual monomer, and the solvent, i.e., alcoholic solvent, which dissolved these monomers as a residual solvent, ketone solvent, an aromatic series system solvent, a halogen system solvent, etc. are mentioned. And the sum total of these residual solvents and a residual monomer is considered to occupy the great portion of volatile gas constituents.

[0025] Hereafter, an example of the electrophotography image formation equipment used for this invention and the example which used the adhesion material of this invention as a coupling means of the process means used for this electrophotography image formation equipment and this process means are indicated.

[0026] Drawing 1 is an example of the sectional view of the electrophotography image formation equipment used for this invention. In drawing 1, 50 applies an organic sensitization layer to drum lifting, it is the photo conductor which painted the resin layer of this invention on it, and it is the photo conductor drum (photo conductor) which is image support, and drive rotation is clockwise carried out [it is grounded and]. 52 is electrification equipment of scorotron and uniform electrification is given to it by corona discharge to photo conductor drum 50 peripheral surface. In advance of electrification by this electrification equipment 52, in order to abolish the hysteresis of the photo conductor in pre-image formation, exposure by the electrification pre-exposure section 51 which used light emitting diode etc. may be performed, and a photo conductor peripheral surface may be discharged.

[0027] After being uniform charged to a photo conductor, image exposure based on a picture signal is performed by the image aligner 53. The image aligner 53 of this drawing makes laser diode which is not illustrated the exposure light source. The scan of photo conductor drum lifting is made by the light which had the optical path bent by the reflective mirror 532 through the rotating polygon mirror 531, ftheta lens, etc., and an electrostatic latent image is formed.

[0028] Here, with the image aligner 53, when the exposure section potential of the photo conductor of this invention is uniformly charged in a photo conductor front face (it exposes continuously in laser exposure), it means the potential measured near the development location upper part. Measurement is performed by forming the potential sensor 547 in the development location upper part like drawing 1.

[0029] Subsequently the electrostatic latent image is developed with a developer 54. The developer 54 which contained the developer which consists of a toner and a carrier is formed in photo conductor drum

50 periphery, a magnet is built in and development is performed by the development sleeve 541 which holds a developer and is rotated. Although the developer 54 interior consists of a developer stirring member 544, a developer conveyance member 543, and amount specification-part material of conveyances 542 grade, and a developer is stirred, it is conveyed and a development sleeve is supplied, the amount of supply is controlled by this amount specification-part material 542 of conveyances. Although the amount of conveyances of this developer changes also with the linear velocity and the developer specific gravity of an organic electrophotography photo conductor which are applied, generally it is the range of 20 - 200 mg/cm².

[0030] A developer For example, the carrier which coated the surroundings of it with insulating resin by using the above-mentioned ferrite as a core, It is what becomes the coloring particle which consists of low-molecular-weight polyolefine of coloring agents, such as carbon black, an electric charge control agent, and this invention by making the above-mentioned styrene acrylic resin into the charge of a principal member from the toner which *(ed) a silica, titanium oxide, etc. outside. A developer is regulated on the development sleeve 541 by the amount specification-part material of conveyances at 100-600-micrometer thickness, it is conveyed in a development region, and development is performed. At this time, development is usually performed between the photo conductor drum 50 and the development sleeve 541, applying alternating current bias voltage direct-current bias and if needed. Moreover, a developer is developed in the state of [non-contact] contact to a photo conductor.

[0031] After image formation, the recording paper P is fed to an imprint region by rotation actuation of the feed roller 57, when the timing of an imprint is ready.

[0032] The recording paper P with which the pressure welding of the imprint roller (imprint equipment) 58 was carried out to the peripheral surface of the photo conductor drum 50, and it was fed to it in the imprint region synchronizing with the timing of an imprint is fastened, and it imprints.

[0033] Subsequently, electric discharge is made with the separation brush (decollator) 59 mostly made into the pressure-welding condition with the imprint roller at coincidence, the peripheral surface of the photo conductor drum 50 separates, and the detail paper P is conveyed by the anchorage device 60, and after it welds a toner by heating of the heat roller 601 and the sticking-by-pressure roller 602 and pressurization, it is discharged by the equipment exterior through the delivery roller 61. in addition, the aforementioned imprint roller 58 and the aforementioned separation brush 59 -- the peripheral surface of the photo conductor drum 50 after passage of the recording paper P -- evacuation -- alienation -- carrying out -- a degree -- it prepares for formation of a toner image.

[0034] electric discharge the photo conductor drum 50 after separating the detail paper P on the other hand removes and cleans a residual toner with the pressure welding of the blade 621 of cleaning equipment 62, and according to the electrification pre-exposure section 51 again, and electrification by electrification equipment 52 -- winning popularity -- a degree -- it goes into the process of image formation.

[0035] In addition, 70 is a removable process cartridge with which a photo conductor, electrification equipment, imprint equipment, a decollator, and cleaning equipment are unified.

[0036] Hereafter, the example which used the adhesion material of this invention for the process means is shown.

Example drawing 2 of use of the adhesion material to cleaning equipment is the example which used the adhesion material of this invention for cleaning equipment. As shown in drawing 2, it falls in the lower limit section, without the toner scratched by the cleaning blade being recovered by the cleaning roller although cleaning equipment 62 consists of cleaning rollers which collect the cleaning blades 621 and these ***** toners which scratch a toner, it disperses out of cleaning equipment, and other process means are polluted, and it is easy to become the cause of an image defect. In order to prevent this toner scattering, the sheet member (a Mylar (R) film etc. is used) 623 for receiving the toner which falls without the ability of a cleaning roller recovering is formed in the cleaning equipment lower limit section in accordance with the outer wall of cleaning equipment. The adhesion material n of this invention is used as a means to join this sheet member to the outer wall of cleaning equipment. In addition, 622 in drawing shows a cleaning roller.

[0037] Example drawing 3 of use of the adhesion material to a developer is the example which used the adhesion material of this invention for the developer. As shown in drawing 3 R> 3, a developer 54 adjoins the photo conductor drum 50, and is formed, and the developer which becomes the interior from a toner and a carrier is built in. although this developer is conveyed by rotation of the development sleeve 541 and development is performed, conveyance of this developer and the toner at the time of development are started -- a toner tends to disperse by electric and mechanical force external. That part disperses in the exterior of a developer, and this scattering toner pollutes other process means, and causes an image defect. In order to prevent this toner scattering and to prevent scattering of a toner etc. in the vertical edge of a developer, it has the structure of installing the urethane sheet 546 in accordance with the outer wall of a developer. This urethane sheet is prepared in accordance with the outer wall of a developer. The adhesion material n of this invention is used as a means to join members, such as this urethane sheet, to the outer wall of a developer.

[0038]

[Example] Although an example is given and this invention is hereafter explained to a detail, the aspect of this invention is not limited to this.

[0039] The cleaning equipment which joined the sheet member for receiving a toner given in drawing 2 as cleaning equipment of electrophotography image formation equipment given in example 1 drawing 1 to the outer wall by adhesion material was carried. As an electrophotography photo conductor, the organic photo conductor of marketing which has the laminated structure of the charge generating layer which uses the middle class, the phthalocyanine pigment, and butyral resin of a polyamide resin layer as a principal component, and the charge transportation layer which uses the charge transportation matter and polycarbonate resin of a styryl triphenylamine system compound as a principal component was used on the cylindrical aluminum base material. Six kinds of classes of adhesion material used for said cleaning equipment were used as shown in Table 1, and each cleaning equipment was used as the cleaning equipments 1-6. The electrophotography image formation equipments 1-6 using these organic photo conductor and the cleaning equipments 1-6 were left under the condition of 10 degrees C and 30% RH the bottom of 30 degrees C and 80%RH (relative humidity), and after the neglect during ten days, the copy image which has a halftone image after that was formed, and image nonuniformity etc. was evaluated.

[0040] In addition, using commercial adhesion material (it has the adhesive layer of silicone system resin (NITTO DENKO make: 501)), the adhesion material 1-6 which adjusted the volatile capacity of the adhesion material in Table 1, the amount of residual monomers, and the amount of residual solvents changed heating conditions like the Table 1 publication in the vacuum, and produced this adhesion material.

[0041] Valuation-basis O: Muscle nonuniformity with muscle nonuniformity [thin in image-nonuniformity-generating-less **:halftone image] deep in a generating x:halftone image shows a generating result to a halftone image in Table 1.

[0042]

[Table 1]

クリーニング装置 No.	粘着材の種類(加熱条件)	揮発性ガス量 ($\mu\text{g}/\text{cm}^2$)	残留溶媒量 ($\mu\text{g}/\text{cm}^2$)	残留モノマー量 ($\mu\text{g}/\text{cm}^2$)	画像ムラ	備考
1	1 (50°C / 7 時間)	1.7	0.004	1.7	◎	本発明内
2	2 (40°C / 9 時間)	2.1	0.005	2.1	◎	本発明内
3	3 (60°C / 8 時間)	7.1	0.007	7.1	◎	本発明内
4	4 (80°C / 1 時間)	7.3	0.008	7.3	△	本発明内
5	5 (40°C / 2 時間)	8.9	0.349	8.5	△	本発明内
6	6 (20°C / 4 時間)	10	0.36	9.5	×	本発明外

[0043] Although image nonuniformity has not occurred from Table 1 with the cleaning equipments 1-3 using the adhesion material by which all the values of volatile capacity, the amount of residual monomers, and the amount of residual solvents are contained in the range of this invention The value's

of amount of residual solvents cleaning equipment 4 using the adhesion material besides this invention, the amount of residual solvents, Thin image nonuniformity occurred with the cleaning equipment 5 using the adhesion material besides this invention, and image nonuniformity with the value of the amount of residue monomers deep with the all values' of volatile capacity, amount of residual monomers, and amount of residual solvents cleaning equipment 6 using the adhesion material besides this invention has occurred.

[0044] It used in order to join an urethane sheet given [the adhesion material tape which carried out the same processing as the example 2 above] in drawing 3 to a developer outer wall, and it included in electrophotography image formation equipment given [this developer] in drawing 1 , and the same image evaluation as an example 1 was performed. Consequently, the same evaluation result as an example 1 was obtained.

[0045]

[Effect of the Invention] By using the adhesion material which fulfills the conditions of this invention as a coupling means which forms process means, such as cleaning equipment and a developer, property degradation of an electrophotography photo conductor was able to be prevented so that clearly also from an example, and the good electrophotography image which is not made to generate image nonuniformity was able to be created.

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TECHNICAL FIELD

[Field of the Invention] This invention relates to the process cartridge and electrophotography image formation equipment using the adhesion material and this adhesion material which use the image formation of an electrophotography method for a required process means on the occasion of operation.

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PRIOR ART

[Description of the Prior Art] As for image formation equipments, such as a printer using an electrophotography method, an electrophotography image is formed, when it has process means, such as electrification equipment, an image aligner, a developer, imprint equipment, and cleaning equipment, and this process means carries out a certain operation of electrification, development, etc. to an electrophotography photo conductor around an electrophotography photo conductor. These process means consist of two or more members and components, and each process means is formed of the coupling means which joins these members and components. The thing using adhesion material which prepared the shape of toothing at least in the joint of a member or components as such a coupling means, such as a mechanical coupling means and a double faced adhesive tape, etc. is mentioned. Although these coupling means form one process means from the cost and convenience, it is used together in many cases. That is, although it is required to make the configuration of a member and components into the structure suitable for a mechanical coupling means in order to form all of the member and components for it in forming one process means by the mechanical coupling means, by at least an unsuitable bond part's having a mechanical coupling means, or taking mechanical joint structure, it may become cost quantity remarkably and, in such a case, the chemical coupling means is used.

[0003] as a coupling means chemical in recent years -- adhesion material, such as a double-sided tape, -- large -- using -- **** -- although it is becoming like, if the structure of said process means carried out is formed using these adhesion material marketed, this process means is installed in electrophotography image formation equipment and an image is formed, the phenomenon which image nonuniformity often generates will have been found out. As a result of examining such causal relation, it acted on the electrophotography photo conductor at the adhesion material marketed, and the volatile component which degrades image formation remained, these after-images object evaporated this invention person etc. within image formation equipment, and it found out reducing the property of an electrophotography photo conductor.

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EFFECT OF THE INVENTION

[Effect of the Invention] By using the adhesion material which fulfills the conditions of this invention as a coupling means which forms process means, such as cleaning equipment and a developer, property degradation of an electrophotography photo conductor was able to be prevented so that clearly also from an example, and the good electrophotography image which is not made to generate image nonuniformity was able to be created.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] The purpose of this invention is offering the adhesion material for process means which does not generate image defects, such as image nonuniformity, as adhesion material used for structure formation of the process means used for electrophotography image formation equipment, and is offering the process cartridge using this adhesion material for process means, and the electrophotography image formation equipment using this process means.

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MEANS

[Means for Solving the Problem] The purpose of this invention is attained by taking the following structures.

[0006] 1. Adhesion material for process means characterized by using adhesion material whose volatile capacity is 0.1-9 (mug/cm²) as coupling means used for structure formation of at least one process means of multiple-processes means installed around electrophotography photo conductor.

[0007] 2. Adhesion material for process means characterized by using adhesion material whose residual monomers are 0.1-7.5 (mug/cm²) as coupling means used for structure formation of at least one process means of multiple-processes means installed around electrophotography photo conductor.

[0008] 3. Adhesion material for process means characterized by residual solvents of adhesion material used for structure formation of at least one process means of multiple-processes means installed around electrophotography photo conductor being 0.001-0.007 (mug/cm²).

[0009] 4. Adhesion material for process means given in said any 1 term of 1-3 characterized by said multiple-processes means being two or more sorts of equipments chosen from electrification equipment, image aligner, developer, imprint equipment, and cleaning equipment.

[0010] 5. Process cartridge with which this process cartridge is characterized by using adhesion material for process means of publication for said any 1 term of 1-4 as coupling means in electrophotography photo conductor and process cartridge which has at least one sort of process means.

[0011] 6. Electrophotography image formation equipment characterized by using adhesion material for process means of publication for said any 1 term of 1-4.

[0012] Hereafter, this invention is explained to a detail. As a coupling means used for structure formation of at least one process means of the multiple-processes means arranged around an electrophotography photo conductor, this invention is characterized by using the adhesion material for the process means of claims 1-3.

[0013] With the above-mentioned multiple-processes means, equipments, such as the electrification equipment which carries out a certain operation, an image aligner, a developer, imprint equipment, cleaning equipment, a transport device, and a decollator, and an equipment are mentioned to an electrophotography photo conductor (it is also only henceforth called a photo conductor) on the occasion of the image formation of an electrophotography method. In the electrophotography image formation equipment of this invention, the configuration that it is not necessary to arrange these equipments and all the equipments for example, and cleaning equipment and a developer are made to serve a double purpose around the electrophotography photo conductor may be used, and the electrophotography image formation equipment with which imprint equipment is not installed may be used.

[0014] It means considering as the tape on which the components or member which constitutes the process means described above as adhesion material for structure formation of said process means is joined or pasted up, and using adhesion material.

[0015] One of the adhesion material for the electrophotography photo conductors of this invention is characterized by volatile capacity being 0.1-9 (mug/cm²). With this volatile gas, it consists of volatile components, such as volatile components, such as a monomer component contained in the manufacture

raw material of this adhesion material, a solvent used in the manufacture process of this adhesion material, and an additive. This invention is defined as volatile capacity as capacity measured by the following measuring methods. However, if it is the measuring method with which the same result is obtained based on the same measurement principle, a measuring device will not be restricted to the following measuring device.

[0016] Measurement of the measuring method volatility capacity of volatile capacity was performed using the dynamic head space method using the measuring equipment of GC-MS (H.P. the product made from 6890:HewlettPackard, JMS-AMII150: JEOL Co., Ltd. make). A sample area of 1cm of the measuring object, using 2, 120-degree-C heating for 10 minutes was performed, volatile gas was generated, and it measured. The amount of volatile gas was computed by n-pentadecane conversion.

[0017] One of the adhesion material for the electrophotography photo conductors of this invention is characterized by residual monomers being 0.1-7.5 (mug/cm²). This residual monomer means that the monomer of the manufacture raw material of this adhesion material remains in adhesion material.

[0018] By the same measuring method as measurement of said volatile capacity, the amount of measuring method residual monomers of the amount of residual monomers is measured.

[0019] A sample area of 1cm of the measuring object, using 2, the Measuring condition performed 120-degree-C heating for 10 minutes, generated volatile gas, and was measured. The amount of residual monomers was computed by n-pentadecane conversion.

[0020] One of the adhesion material for the electrophotography photo conductors of this invention is characterized by residual solvents being 0.001-0.007 (mug/cm²). This residual solvent means that the solvent used in the manufacture process of this adhesion material into adhesion material remains.

[0021] By the same measuring method as measurement of said volatile capacity, the amount of measuring method residual solvents of the amount of residual solvents is measured.

[0022] A sample area of 1cm of the measuring object, using 2, the Measuring condition performed 120-degree-C heating for 10 minutes, generated volatile gas, and was measured. The amount of residual solvents was computed by n-pentadecane conversion.

[0023] Synthetic resin and synthetic rubber in which the adhesion material for the process means of this invention has adhesiveness, For example, polyvinyl methyl ether, the polyvinyl ethylene ether, polyvinyl isobutyl ether, A polyisobutylene, isobutylene isoprene rubber, chloroprene rubber, SBR, chlorinated rubber, Cyclized rubber, a vinyl chloride vinyl acetate copolymer, polymethacrylic acid, polyacrylic acid, It has the adhesive layer (binder) of one kind or the sheet configuration (a tape configuration is sufficient) which mixed two or more kinds and was formed out of polymethacrylic acid ester, polyacrylic ester, an ethylene-vinylacetate copolymer, a polyvinyl butyral, etc. Moreover, the adhesion material of this invention may have the base material in addition to the adhesive layer, and may consist of only adhesive layers like the double-sided tape. Furthermore, rosin, a rosin derivative, petroleum system resin, etc. can be added and used for this adhesive layer as a tackifier.

[0024] That is, it is the residual monomer used for formation ingredients, such as the above-mentioned rubber, a polymer, and resin, as said residual monomer, and the solvent, i.e., alcoholic solvent, which dissolved these monomers as a residual solvent, ketone solvent, an aromatic series system solvent, a halogen system solvent, etc. are mentioned. And the sum total of these residual solvents and a residual monomer is considered to occupy the great portion of volatile gas constituents.

[0025] Hereafter, an example of the electrophotography image formation equipment used for this invention and the example which used the adhesion material of this invention as a coupling means of the process means used for this electrophotography image formation equipment and this process means are indicated.

[0026] Drawing 1 is an example of the sectional view of the electrophotography image formation equipment used for this invention. In drawing 1, 50 applies an organic sensitization layer to drum lifting, it is the photo conductor which painted the resin layer of this invention on it, and it is the photo conductor drum (photo conductor) which is image support, and drive rotation is clockwise carried out [it is grounded and]. 52 is electrification equipment of scorotron and uniform electrification is given to it by corona discharge to photo conductor drum 50 peripheral surface. In advance of electrification by

this electrification equipment 52, in order to abolish the hysteresis of the photo conductor in pre-image formation, exposure by the electrification pre-exposure section 51 which used light emitting diode etc. may be performed, and a photo conductor peripheral surface may be discharged.

[0027] After being uniform charged to a photo conductor, image exposure based on a picture signal is performed by the image aligner 53. The image aligner 53 of this drawing makes laser diode which is not illustrated the exposure light source. The scan of photo conductor drum lifting is made by the light which had the optical path bent by the reflective mirror 532 through the rotating polygon mirror 531, ftheta lens, etc., and an electrostatic latent image is formed.

[0028] Here, with the image aligner 53, when the exposure section potential of the photo conductor of this invention is uniformly charged in a photo conductor front face (it exposes continuously in laser exposure), it means the potential measured near the development location upper part. Measurement is performed by forming the potential sensor 547 in the development location upper part like drawing 1.

[0029] Subsequently the electrostatic latent image is developed with a developer 54. The developer 54 which contained the developer which consists of a toner and a carrier is formed in photo conductor drum 50 periphery, a magnet is built in and development is performed by the development sleeve 541 which holds a developer and is rotated. Although the developer 54 interior consists of a developer stirring member 544, a developer conveyance member 543, and amount specification-part material of conveyances 542 grade, and a developer is stirred, it is conveyed and a development sleeve is supplied, the amount of supply is controlled by this amount specification-part material 542 of conveyances. Although the amount of conveyances of this developer changes also with the linear velocity and the developer specific gravity of an organic electrophotography photo conductor which are applied, generally it is the range of 20 - 200 mg/cm².

[0030] A developer For example, the carrier which coated the surroundings of it with insulating resin by using the above-mentioned ferrite as a core, It is what becomes the coloring particle which consists of low-molecular-weight polyolefine of coloring agents, such as carbon black, an electric charge control agent, and this invention by making the above-mentioned styrene acrylic resin into the charge of a principal member from the toner which ^{**}(ed) a silica, titanium oxide, etc. outside. A developer is regulated on the development sleeve 541 by the amount specification-part material of conveyances at 100-600-micrometer thickness, it is conveyed in a development region, and development is performed. At this time, development is usually performed between the photo conductor drum 50 and the development sleeve 541, applying alternating current bias voltage direct-current bias and if needed. Moreover, a developer is developed in the state of [non-contact] contact to a photo conductor.

[0031] After image formation, the recording paper P is fed to an imprint region by rotation actuation of the feed roller 57, when the timing of an imprint is ready.

[0032] The recording paper P with which the pressure welding of the imprint roller (imprint equipment) 58 was carried out to the peripheral surface of the photo conductor drum 50, and it was fed to it in the imprint region synchronizing with the timing of an imprint is fastened, and it imprints.

[0033] Subsequently, electric discharge is made with the separation brush (decollator) 59 mostly made into the pressure-welding condition with the imprint roller at coincidence, the peripheral surface of the photo conductor drum 50 separates, and the detail paper P is conveyed by the anchorage device 60, and after it welds a toner by heating of the heat roller 601 and the sticking-by-pressure roller 602 and pressurization, it is discharged by the equipment exterior through the delivery roller 61. in addition, the aforementioned imprint roller 58 and the aforementioned separation brush 59 -- the peripheral surface of the photo conductor drum 50 after passage of the recording paper P -- evacuation -- alienation -- carrying out -- a degree -- it prepares for formation of a toner image.

[0034] electric discharge the photo conductor drum 50 after separating the detail paper P on the other hand removes and cleans a residual toner with the pressure welding of the blade 621 of cleaning equipment 62, and according to the electrification pre-exposure section 51 again, and electrification by electrification equipment 52 -- winning popularity -- a degree -- it goes into the process of image formation.

[0035] In addition, 70 is a removable process cartridge with which a photo conductor, electrification

equipment, imprint equipment, a decollator, and cleaning equipment are unified.

[0036] Hereafter, the example which used the adhesion material of this invention for the process means is shown.

Example drawing 2 of use of the adhesion material to cleaning equipment is the example which used the adhesion material of this invention for cleaning equipment. As shown in drawing 2, it falls in the lower limit section, without the toner scratched by the cleaning blade being recovered by the cleaning roller although cleaning equipment 62 consists of cleaning rollers which collect the cleaning blades 621 and these ***** toners which scratch a toner, it disperses out of cleaning equipment, and other process means are polluted, and it is easy to become the cause of an image defect. In order to prevent this toner scattering, the sheet member (a Mylar (R) film etc. is used) 623 for receiving the toner which falls without the ability of a cleaning roller recovering is formed in the cleaning equipment lower limit section in accordance with the outer wall of cleaning equipment. The adhesion material n of this invention is used as a means to join this sheet member to the outer wall of cleaning equipment. In addition, 622 in drawing shows a cleaning roller.

[0037] Example drawing 3 of use of the adhesion material to a developer is the example which used the adhesion material of this invention for the developer. As shown in drawing 3 R> 3, a developer 54 adjoins the photo conductor drum 50, and is formed, and the developer which becomes the interior from a toner and a carrier is built in. although this developer is conveyed by rotation of the development sleeve 541 and development is performed, conveyance of this developer and the toner at the time of development are started -- a toner tends to disperse by electric and mechanical force external. That part disperses in the exterior of a developer, and this scattering toner pollutes other process means, and causes an image defect. In order to prevent this toner scattering and to prevent scattering of a toner etc. in the vertical edge of a developer, it has the structure of installing the urethane sheet 546 in accordance with the outer wall of a developer. This urethane sheet is prepared in accordance with the outer wall of a developer. The adhesion material n of this invention is used as a means to join members, such as this urethane sheet, to the outer wall of a developer.

[0038]

[Translation done.]

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EXAMPLE

[Example] Although an example is given and this invention is hereafter explained to a detail, the aspect of this invention is not limited to this.

[0039] The cleaning equipment which joined the sheet member for receiving a toner given in drawing 2 as cleaning equipment of electrophotography image formation equipment given in example 1 drawing 1 to the outer wall by adhesion material was carried. As an electrophotography photo conductor, the organic photo conductor of marketing which has the laminated structure of the charge generating layer which uses the middle class, the phthalocyanine pigment, and butyral resin of a polyamide resin layer as a principal component, and the charge transportation layer which uses the charge transportation matter and polycarbonate resin of a styryl triphenylamine system compound as a principal component was used on the cylindrical aluminum base material. Six kinds of classes of adhesion material used for said cleaning equipment were used as shown in Table 1, and each cleaning equipment was used as the cleaning equipments 1-6. The electrophotography image formation equipments 1-6 using these organic photo conductor and the cleaning equipments 1-6 were left under the condition of 10 degrees C and 30% RH the bottom of 30 degrees C and 80%RH (relative humidity), and after the neglect during ten days, the copy image which has a halftone image after that was formed, and image nonuniformity etc. was evaluated.

[0040] In addition, using commercial adhesion material (it has the adhesive layer of silicone system resin (NITTO DENKO make: 501)), the adhesion material 1-6 which adjusted the volatile capacity of the adhesion material in Table 1, the amount of residual monomers, and the amount of residual solvents changed heating conditions like the Table 1 publication in the vacuum, and produced this adhesion material.

[0041] Valuation-basis O: Muscle nonuniformity with muscle nonuniformity [thin in image-nonuniformity-generating-less **:halftone image] deep in a generating x:halftone image shows a generating result to a halftone image in Table 1.

[0042]

[Table 1]

クリーニング装置 No.	粘着材の種類(加熱条件)	揮発性ガス量 ($\mu\text{g}/\text{cm}^2$)	残留溶媒量 ($\mu\text{g}/\text{cm}^2$)	残留モノマー量 ($\mu\text{g}/\text{cm}^2$)	画像ムラ	備考
1	1 (50°C / 7 時間)	1.7	0.004	1.7	◎	本発明内
2	2 (40°C / 9 時間)	2.1	0.005	2.1	◎	本発明内
3	3 (60°C / 8 時間)	7.1	0.007	7.1	◎	本発明内
4	4 (80°C / 1 時間)	7.3	0.008	7.3	△	本発明内
5	5 (40°C / 2 時間)	8.9	0.349	8.5	△	本発明内
6	6 (20°C / 4 時間)	10	0.36	9.5	×	本発明外

[0043] Although image nonuniformity has not occurred from Table 1 with the cleaning equipments 1-3 using the adhesion material by which all the values of volatile capacity, the amount of residual monomers, and the amount of residual solvents are contained in the range of this invention The value's

of amount of residual solvents cleaning equipment 4 using the adhesion material besides this invention, the amount of residual solvents, Thin image nonuniformity occurred with the cleaning equipment 5 using the adhesion material besides this invention, and image nonuniformity with the value of the amount of residue monomers deep with the all values' of volatile capacity, amount of residual monomers, and amount of residual solvents cleaning equipment 6 using the adhesion material besides this invention has occurred.

[0044] It used in order to join an urethane sheet given [the adhesion material tape which carried out the same processing as the example 2 above] in drawing 3 to a developer outer wall, and it included in electrophotography image formation equipment given [this developer] in drawing 1 , and the same image evaluation as an example 1 was performed. Consequently, the same evaluation result as an example 1 was obtained.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is an example of the sectional view of the electrophotography image formation equipment used for this invention.

[Drawing 2] It is the example which used the adhesion material of this invention for cleaning equipment.

[Drawing 3] It is the example which used the adhesion material of this invention for the developer.

[Description of Notations]

50 Photo Conductor Drum (or Photo Conductor)

51 Electrification Pre-exposure Section

52 Electrification Equipment

53 Image Aligner

54 Developer

541 Development Sleeve

542 The Amount Specification-Part Material of Conveyances

543 Developer Conveyance Member

544 Developer Stirring Member

546 Urethane Sheet

547 Potential Sensor

57 Feed Roller

58 Imprint Roller (Imprint Equipment)

59 Separation Brush (Eliminator)

60 Anchorage Device

61 Delivery Roller

62 Cleaning Equipment

70 Process Cartridge

n Adhesion material

[Translation done.]

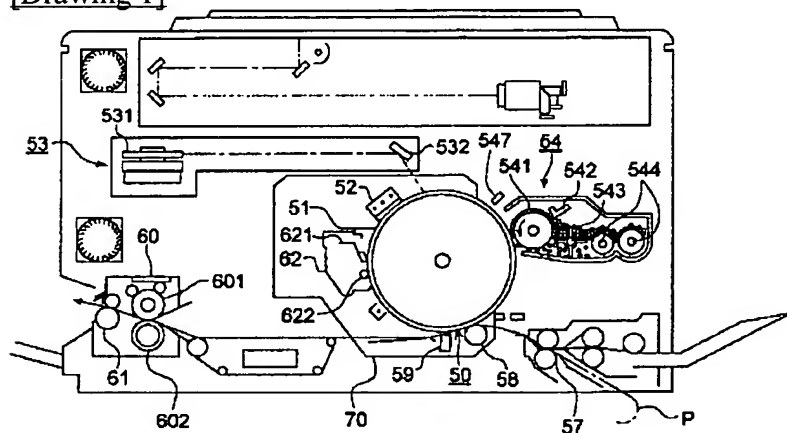
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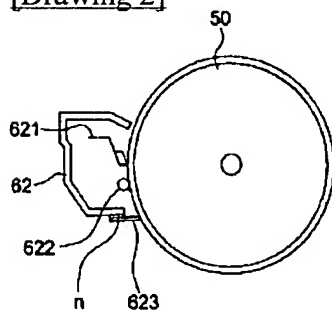
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DRAWINGS

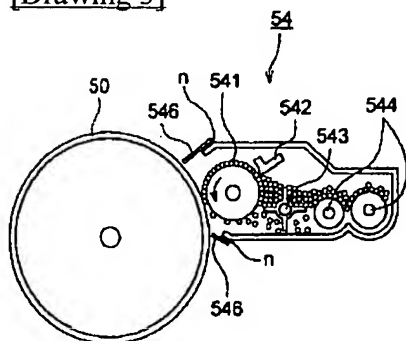
[Drawing 1]



[Drawing 2]



[Drawing 3]



[Translation done.]